



Department of Energy National Nuclear Security Administration Mercury Storage

at the
Y-12 National Security Complex

Commodity-Grade Mercury Stakeholder Meeting

June 14, 2007

Background

- Mercury acquired from National Defense Stockpile (NDS)
 - >20 million pounds (early 1950's)
- Mercury Use at Y-12
 - COLEX lithium-6 isotope separation process in operation during the 1950's and early 1960's
- COLEX operations shutdown in 1963
 - Sufficient lithium-6 produced to meet needs of the weapons program

Background cont.

- Mid 1960's:
 - Production process dismantled
 - Mercury recovered
- Mid 1970's: DOE/NNSA mercury
 - Cold filtered to 99.9% purity
 - Reflasked
- 1993/1994:
 - Last public sale by Defense National Stockpile Center (DNSC) of DOE/NNSA-owned mercury in 1993
 - DNSC halted mercury sales (in 1994) due to concerns about impact on global environment

Mercury Stored at Y-12

- Approx. 35,000 seamless flasks
 - Made of carbon steel
 - Sealed with threaded pipe plugs
 - 76 pounds of mercury per flask
- Total Quantity in Storage
 - 1,206 metric tons
- Flasks stored in groups of 45 on wooden pallets
- Pallets stored up to three (3) high

Mercury in Storage at Y-12



Storage Building

■ Single-Story Building

- Solid block/masonry wall construction
- 150 feet by 90 feet
- Mercury is the only material stored in the facility

■ Building Floor

- Concrete
- Sealed with a leak-proof, seamless coating
- Sloped to a grated sump
- Dikes to mitigate release (in case of a spill)

Storage Building cont.

■ Security

- Located in a protected area (within security fence/boundaries)
- Locked for access control

■ Fire Suppression

- Automatic, dry-pipe (water supply) fire suppression system
- Portable fire extinguishers

Monitoring & Inspections

■ Ambient Air Monitoring

- Continuously monitored since 1986
- Conducted downwind of storage building
- Averages $0.0036 \mu\text{g}/\text{m}^3$ (EPA reference concentration $0.3 \mu\text{g}/\text{m}^3$)

■ Inspections

- Visual inspections (walkthroughs) performed on a routine basis

■ Indoor Air Sampling

- Performed when work conducted within the facility

Long Term Storage Issues

■ Reflasking

- Reflasking will eventually be required
- Assessment of reflasking needs to be conducted in the next 5+ years

■ Risk of mercury release or exposure is low except during reflasking

■ Existing storage unnecessarily located inside of highly secure area

- Only cleared personnel allowed to access

Long Term Storage Issues cont.

- Cost of continued storage:
 - Costs for maintaining the facility, monitoring, and facility management, etc.
 - Re-roofing required by approximately 2015
 - Estimated cost for the next 40 years is approximately \$42 million



Contact Information

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